

Communicable Diseases

WATCH



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FEATURE IN FOCUS

Review of measles in Hong Kong (2013-2017)

Reported by Ms Fanny WS HO, Scientific Officer, Vaccine Preventable Disease Office, Surveillance and Epidemiology Branch, CHP.

Background

Measles was a common childhood infection prior to the introduction of measles vaccine. The disease is highly contagious, usually spread through airborne droplets or by direct contact with nasal or throat excretions of infected persons. Infants and immunosuppressed individuals are at a higher risk of complications, severe disease and death following infection, while measles during pregnancy may increase the risk of miscarriage, stillbirth or preterm delivery.

Global situation

Globally, measles elimination continues to be a public health priority. In 2016, an estimated seven million people were affected by measles despite an improved overall vaccine uptake worldwide¹. Outbreaks were being reported not only in endemic regions, but also in countries with successful interruption of transmission or approaching elimination. In Europe, the number of reported measles cases had quadrupled from 5 273 cases in 2016 to 21 315 cases in 2017, with large-scale outbreaks occurring in Italy, Romania and Ukraine². Measles is also an endemic infection in many areas in Asia. In the first two months of 2018, confirmed measles cases continued to be reported in the Philippines (855), Mainland China (689), Malaysia (453), Thailand (274) and Indonesia (254)³. Local outbreaks triggered by imported cases in places with low incidence have also occurred from time to time. For example, recently a traveller who acquired the infection in Thailand triggered outbreaks with spread to more than 100 persons in Okinawa and Aichi prefecture of Japan and a cluster of twelve cases in Taiwan⁴⁻⁶.

Local situation

Hong Kong experienced a surge in measles infections from 2013 to 2014 after a period of low incidence in the four years prior to this surge (eight to 25 cases per year between 2009 and 2012). In 2013, 38 measles cases were recorded, and the number further rose to a high of 50 cases (0.69 cases per 100 000 population) in 2014 with six nosocomial and household clusters reported (Figure 1). This resurgence was gradually interrupted and the number of cases had decreased steadily to a low level by the end of 2015. Although there was an increase in the number of confirmed cases in Hong Kong during this upsurge, we managed to stop the ongoing transmissions from the cases. In September 2016, Hong Kong was certified by the World Health Organization as having eliminated measles, i.e. there was absence of endemic measles transmission (defined as existence of continuous transmission of indigenous or imported measles virus that persists for at least 12 months) for a period of at least 36 months. The annual totals had remained low since 2016, with nine, four and seven cases confirmed in 2016, 2017 and 2018 (as of May 8) respectively. There have been no measles deaths since 1990.

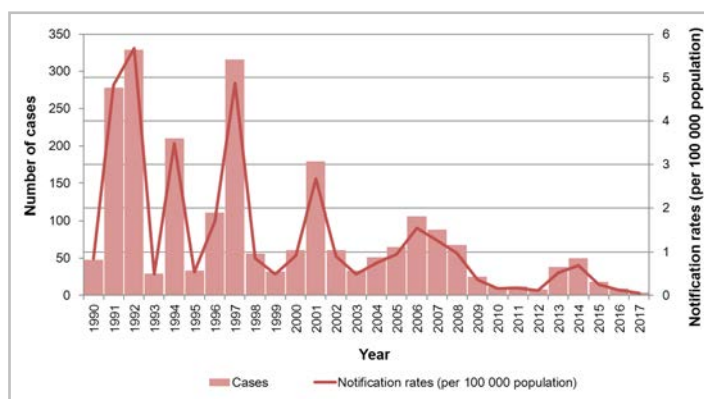


Figure 1 - Number and notifications rate of reported measles cases in Hong Kong, 1990-2017.

Here we described the epidemiology of measles in Hong Kong in the past five years (2013-2017) and the characteristics of cases reported in this period. During the past five years, a total of 119 measles cases were reported, of which 54 were either imported (51 cases, 43%) or import-related (3 cases, 3%) (i.e. cases with a known epidemiological linkage to another confirmed imported case) (Table 1). Importations mainly occurred among foreign visitors to Hong Kong and local residents exposed to measles while travelling abroad (Table 2). For the remaining 65 cases, most of them were sporadic cases without known source of infection in Hong Kong after thorough epidemiological investigation.

Table 1 - Measles cases by source of infection^a, 2013-2017 (N=119).

| Year | Total | Endemic* | Unknown source [#] | Imported | Import-related |
|--------------|------------|----------|-----------------------------|-----------|----------------|
| 2013 | 38 | 0 | 19 (50%) | 19 (50%) | 0 |
| 2014 | 50 | 0 | 23 (46%) | 24 (48%) | 3 (6%) |
| 2015 | 18 | 0 | 14 (78%) | 4 (22%) | 0 |
| 2016 | 9 | 0 | 8 (89%) | 1 (11%) | 0 |
| 2017 | 4 | 0 | 1 (25%) | 3 (75%) | 0 |
| Total | 119 | 0 | 65 | 51 | 3 |

Notes:
^aCases are classified according to Guidelines on Verification of Measles and Rubella Elimination in the Western Pacific Region: http://www.wpro.who.int/immunization/documents/measles_elimination_verification_guidelines_2013/en/.
^{*}Endemic cases refer to cases resulting from endemic transmission of measles virus (continuous transmission of indigenous or imported measles virus that persists for ≥ 12 months).
[#]Unknown source cases refer to cases in which epidemiological or virological linkage to importation or endemic transmission cannot be established.

Overall, their ages ranged from one month to 56 years with a median of 20 years. Ninety-five (80%) were Chinese, 11 (9%) were Filipino and the remaining 13 cases were of other ethnicities. Figure 2 and Table 3 show the vaccination history by age group and place of birth/residence respectively. Nearly one-third of the cases (36 cases, 30%) were infants less than one year of age who were not yet due for the first dose of Measles, Mumps and Rubella (MMR) vaccine according to the Hong Kong Childhood Immunisation Programme (HKCIP). Among these infant cases, 29 (81%) cases were born in Hong Kong including four who lived in Mainland China at the time of infection, while seven (19%) cases were born elsewhere. Of the 17 cases aged one to four years (14%), six cases had received the first dose of measles-containing vaccine (MCV), while 11 were unvaccinated including six children who were non-resident and hence not covered by the local immunisation schedule.

Sixty cases (50%) were adults aged 18 or above, in which 23 (38%) were local-born while the remaining 36 cases (60%) were born elsewhere including 17 born in Mainland China and nine in the Philippines. One adult case with travel history to the Philippines could not be contacted at the time of investigation, and therefore was excluded from analyses. Among the 36 foreign-born cases, 31 (86%) were migrants, foreign workers and overseas students who were all either unvaccinated or uncertain about their vaccination history. Seven of these cases were domestic helpers from the Philippines and Indonesia, of which three had travel history to their home country during the incubation period.

There were seven small measles clusters (six involving two cases and one involving five cases) reported over the review period, including six in 2014 and one in 2015 (Table 4). Five were nosocomial clusters and two were household clusters. Among the 15 cases affected in these clusters, 11 patients (73%) had never received measles vaccination. This was mainly because the patients were either too young and not due for the first dose of MMR vaccine or they were not covered under the HKCIP. Four clusters had been associated with imported index cases with travel history to Mainland China during the incubation period, while the index cases of the remaining three clusters had not travelled outside Hong Kong. As for the five nosocomial clusters, immediate measures were taken to strengthen infection control and isolation practices. All clusters were effectively contained without further spread.

Table 2 - Measles cases by place of importation, 2013-2017 (N=51).

| Year | Number of imported cases (% of total in a year) | Place of importation |
|------|---|--|
| 2013 | 19 (50%) | Mainland China (13), Philippines (4) and Indonesia (2) |
| 2014 | 24 (48%) | Mainland China (14), Philippines (6), India (1), Kenya (1), Taiwan (1) and United States (1) |
| 2015 | 4 (22%) | Mainland China (3) and Indonesia (1) |
| 2016 | 1 (11%) | Indonesia (1) |
| 2017 | 3 (75%) | Australia (1), Indonesia (1) and Italy (1) |

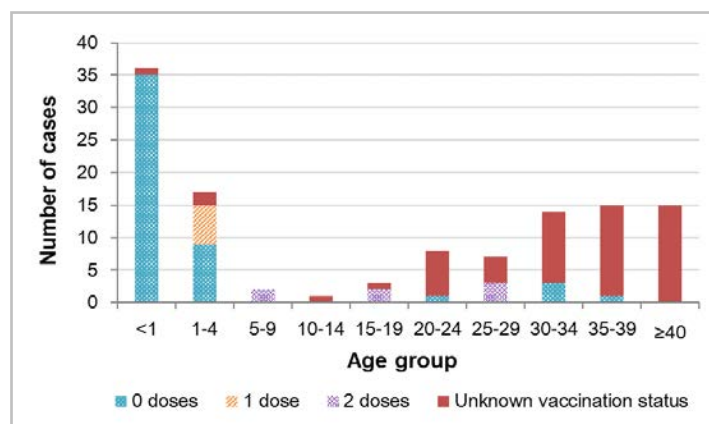


Figure 2 - Measles vaccination status by age group, 2013-2017.

Table 3 - Measles vaccination status by place of birth/residence (N=119).

| Age group (in years) | Place of birth/residence | Received ≥ 1 dose of MCV | Unvaccinated or unknown vaccination history |
|----------------------|--------------------------|--------------------------|---|
| <1 (N=36) | Local born resident | 0 | 29 |
| | Non-local born resident | 0 | 4 |
| | Non-resident | 0 | 3 |
| 1-4 (N=17) | Local born resident | 6 | 6 |
| | Non-local born resident | 0 | 3 |
| | Non-resident | 0 | 2 |
| 5-17 (N=6) | Local born resident | 4 | 1 |
| | Non-local born resident | 0 | 0 |
| | Non-resident | 0 | 1 |
| ≥18 (N=60)* | Local born resident | 3 | 20 |
| | Non-local born resident | 0 | 31 |
| | Non-resident | 0 | 5 |

*One case could not be contacted at the time of investigation, and therefore is not included in the table.

Table 4 - Measles clusters detected in Hong Kong, 2013-2017.

| Year | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|------|--------------------------|----------|------|------|
| Total number of cases | 38 | 50 | 18 | 9 | 4 |
| Number of clusters (persons affected) | 0 | 6 (10) [^] | 1 (5) | 0 | 0 |
| Size of cluster(s) (i.e. number of cases) | - | 2 in each [^] | 5 | - | - |
| Setting | - | Hospital (4) Home (2) | Hospital | - | - |

[^]Two of the measles cases were associated with more than one cluster.

Prevention and control measures

Vaccination is the most effective measure to prevent measles infection. For years, measles has been successfully controlled in Hong Kong through a sustained high coverage of MMR vaccine of over 95% and well-performing surveillance systems. Besides, seroprevalence rates of measles virus antibodies in the local population have been maintained at a very high level (about 95% or above) among all age groups all along (<https://www.chp.gov.hk/en/statistics/data/10/641/701/3536.html>), indicating that the majority of the local population already had immunity against measles infection, either through past infection or vaccination.

Similar to other areas where endemic measles transmission has been eliminated, sustaining the elimination status of measles in Hong Kong remains a challenge, as sporadic cases and clusters will continue to appear from time to time until global eradication is achieved. As Hong Kong is an international city, importation of measles can occur at any time. This underscores the importance of timely vaccination for susceptible populations including young children, travellers, migrants and foreign domestic helpers who have not been fully vaccinated.

Travellers are advised to refer to the website of the Department of Health (DH)'s Travel Health Service for the latest outbreak news of the affected areas (https://www.travelhealth.gov.hk/english/travel_related_diseases/news.html#Measles). In addition, if travellers returning from affected areas develop symptoms of measles (e.g. fever and rash), they should seek medical advice immediately and avoid contact with non-immune persons, especially pregnant women and infants. They should also report their symptoms and travel history in advance to the healthcare workers so that appropriate infection control measures can be implemented at the healthcare facilities to prevent any potential spread.

As different places will develop different immunisation programmes in light of their epidemiological profiles, parents should arrange their children to receive vaccines according to the local immunisation programme of their usual place of residence. For instance, children aged under one who frequently travel to or stay in the Mainland should follow the Mainland's schedule of measles immunisation with the first dose of measles containing vaccine at eight months old, followed by another dose at 18 months.

Travellers to other regions where measles outbreaks are reported or endemic transmission occurs should keep their vaccinations up-to-date and receive necessary immunisations at least two weeks before departure. In view of the potential vaccination gaps among foreign domestic helpers, the Centre for Health Protection (CHP) of DH advises that employment agencies and employers should arrange MMR vaccination for foreign domestic helpers who had never been infected with measles or received measles vaccination during their pre-employment medical checkup or prior to arrival.

In view of the recent measles outbreak in Okinawa of Japan, DH had stepped up efforts to raise public awareness through multiple channels including press releases, press conference, radio interviews and social media messages. People who intend to travel to Okinawa are advised to review their vaccination history and past medical history. For those with incomplete vaccination, unknown vaccination history or unknown immunity against measles, they are advised to consult their doctor for advice on measles vaccination at least two weeks before departure. If pregnant women and women preparing for pregnancy are non-immune to measles, they are advised not to travel to Okinawa during the outbreak. As children aged under one year are generally susceptible to measles, they are also advised not to travel to Okinawa during the outbreak. For further information on measles and MMR vaccination, please visit the CHP's designated webpage on measles: <https://www.chp.gov.hk/en/features/100419.html>.

References

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²World Health Organization Regional Office for Europe. Press release: Europe observes a 4-fold increase in measles cases in 2017 compared to previous year. February 2018. Available at: <http://www.euro.who.int/en/media-centre/sections/press-releases/2018/europe-observes-a-4-fold-increase-in-measles-cases-in-2017-compared-to-previous-year>, accessed on May 8, 2018.

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⁴Government of Okinawa Prefecture. Update on measles situation in Okinawa (as of May 7, 2018).

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⁵Government of Aichi Prefecture. Update on measles cases in Aichi Prefecture (as of May 6, 2018).

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⁶Taiwan Centers for Disease Control. Press release: 今日新增5例麻疹確定病例，疾管署持續監測疫情及接觸者健康情形(2018-04-18).

Available at: <https://www.cdc.gov.tw/Professional/info.aspx?treeid=D3F5DF5A9DA8C3E2&nowtreeid=E10CAEA0BB1DC4B3&tid=1FD7FA7D1C5DDDE2>, accessed on May 8, 2018.

Hand Hygiene Awareness Day (May 5, 2018): It's in your hands - prevent sepsis in healthcare

Reported by Dr Betty WY CHEUNG, Medical and Health Officer, Dr Queenie KM AU, Senior Medical and Health Officer, and Dr TY WONG, Head, Infection Control Branch, CHP.

Proper hand hygiene is the key element to infection prevention and control in both the healthcare settings and in the community. Since 2005, Hong Kong has pledged support to the World Health Organization (WHO)'s first Global Patient Safety Challenge: Clean Care is Safer Care, and we have committed to promote good hand hygiene for better infection prevention and control. Starting from 2010, the Hand Hygiene Awareness Day has been marked annually on the May 5 in Hong Kong. It is the

9th Anniversary of the Hand Hygiene Awareness Day in Hong Kong this year. Once again, we are launching the theme as set up by WHO every year and the theme on hand hygiene by WHO in this year is:

It's in your hands - prevent sepsis in health care



Sepsis is a life-threatening organ dysfunction caused by a dysregulated host response to infection. If not recognised early and managed promptly, it can lead to severe consequences in term of morbidity and mortality. Sepsis frequently results from infections acquired in the healthcare settings, these infections are also called healthcare associated infections (HAIs). According to WHO, one in every 10 patients is affected by HAIs and HAIs are major safety concern nowadays. HAIs can affect patients in all types of healthcare settings where they receive care, this also includes occupational infection suffered by the healthcare workers. The effects of HAIs are very severe as they result in increased resistance of microorganisms to antimicrobials, prolonged hospital stays, unnecessary suffering of patients and additional costs on the healthcare systems. HAIs are avoidable and hand hygiene is the simplest, most effective way to reduce the chance of catching these infections.

This year, the Centre for Health Protection (CHP) of the Department of Health (DH) developed a series of promotional materials to enhance and sustain hand hygiene practice among healthcare workers and general public. A video named “Great thanks to our cleaned healing hands” has been produced. In the video, importance of hand hygiene to prevent HAIs is highlighted. Healthcare worker representatives across public and private healthcare systems in Hong Kong, including DH, the Hospital Authority, private hospitals, universities and primary care practitioners in Hong Kong took part in this production. This video has been uploaded to the CHP’s website, YouTube channel, Facebook page and broadcasted in various healthcare facilities.

Brand-new designed hand hygiene banners were also produced and delivered to public and private hospitals for hand hygiene promulgation. Public could access the latest information on Hand Hygiene Awareness Day 2018 through the CHP’s thematic website on Hand Hygiene Awareness Day (<https://www.chp.gov.hk/en/features/100352.html>).



Working together in hand hygiene promotion is important. CHP would like to take this opportunity to thank all participants in the production of hand hygiene video and stakeholders for their unfailing support in promoting proper hand hygiene. Some photos taken during video shooting are attached here to share with you our effort and joy.

Photos taken in the production of hand hygiene video



Participation in hand hygiene video shooting at the Queen Elizabeth Hospital (left 1st); Hong Kong Adventist Hospital-Stubbs Road (left 2nd); Faculty of Medicine, The University of Hong Kong (left 3rd) and Faculty of Medicine, The Chinese University of Hong Kong (left 4th).

Photos of hand hygiene sanitising relay in DH on March 29, 2018



NEWS IN BRIEF

A local sporadic case of Hantavirus infection

On April 28, 2018, the Centre for Health Protection (CHP) recorded a sporadic case of Hantavirus infection affecting a 55-year-old man with unremarkable past health. He presented with fever, headache and coryzal symptoms on April 15. He was admitted to a public hospital on April 22 and blood tests showed acute kidney injury and thrombocytopenia. His paired blood samples collected on April 22 and 25 were both tested positive for hantavirus IgM and showed more than four-fold rise in hantavirus polyvalent antibody titre (80 to 1 280). His condition improved and he was discharged on April 28.

He travelled alone to Busan, Korea from March 13 to 15. The patient was an engineer and he noticed rodents at a refuse transfer station in West Kowloon during work in early April. However, he did not have direct contact with rodents or their excreta. He did not keep pets at home and denied any previous skin wounds. He lived with his wife and two daughters. His home contacts and other colleagues were asymptomatic. The Food and Environmental Hygiene Department was informed and investigations are ongoing.

Two sporadic cases of necrotising fasciitis caused by *Vibrio vulnificus*

CHP recorded two cases of necrotising fasciitis caused by *Vibrio vulnificus* on May 2 and 3, 2018.

The first case was an 89-year-old female with underlying illnesses. She presented with left ring finger painful swelling on April 27 and was admitted to a public hospital on April 28. Incision & drainage and amputation of left ring finger were performed on April 28 and April 30 respectively. The clinical diagnosis was necrotising fasciitis. She was treated with antibiotics and her condition was stable. The wound swab at her left ring finger collected on April 28 grew *Vibrio vulnificus*. She had history of injury to her left ring finger by a raw fish at home on April 27.

The second case was a 73-year-old female with underlying illnesses. She presented with fever, left knee swelling and pain on April 30 and was admitted to a public hospital on May 2. Surgical debridement was performed on the same day and she was admitted to the intensive care unit for post-operative care. The clinical diagnosis was necrotising fasciitis. She was treated with antibiotics and her condition was critical. Left leg tissue collected on May 2 grew *Vibrio vulnificus*. She had history of visiting wet market but did not report injury by marine products.

Both cases had no recent travel history and their home contacts were asymptomatic.

A local sporadic case of listeriosis

On May 3, 2018, CHP recorded a case of listeriosis affecting a 75-year-old woman with underlying illnesses. She was admitted to a public hospital for management of her underlying illness on April 3 and was transferred to another public hospital on April 7 for further management. She developed fever on April 29 and blood culture collected on the same day yielded *Listeria monocytogenes*. She was treated with antibiotics and her condition was stable. She had no travel history and no history of consumption of high risk food item during the incubation period. Her home contact was asymptomatic. Investigations are ongoing.

A sporadic confirmed case of brucellosis

On May 4, 2018, CHP recorded a confirmed case of Brucellosis affecting a 55-year-old woman with underlying illnesses. She presented with worsened low back pain and urinary incontinence on April 17 and was admitted to a public hospital on April 24. She was found to have fever and right lower limb weakness on admission. Magnetic resonance imaging of the lumbar spine showed no infective foci. The clinical diagnosis was spinal stenosis with cauda equina syndrome. She was discharged on April 26. Subsequently, her blood sample collected on April 24 grew *Brucella melitensis* and she was called back for admission on May 1. She was treated with antibiotics and her condition was stable. The patient had travelled with her daughter-in-law to Zhaoqing for a few days in February 2018 but she forgot the details. No risk factor was identified. Her home contacts and travel collateral were asymptomatic.